

SoccerBot Showdown



Objective:

A) Students will build a small mobile robot that can play soccer. Robots will need to dribble the ball (a large whiffle ball), pass the ball, shoot goals and defend a goal. For the competition, there will be three robots on each team.

B) Design and maintain a digital copy Engineering Notebook that must be maintained and updated through the challenge.

The Bots:

- 1) Students must submit a detailed and labeled drawing prior to beginning the build.
- 2) Robots must fit in a 12"x12"x12" box.
- 3) Robots may use no more than 3 TETRIX motors (hint: LEGO motors might also be helpful)
- 4) Robots must be built from ONLY the contents of one basic TETRIX kit and one basic LEGO Mindstorms kit.
- 5) Robots must be programed using a remote control (NO KEYBOARD CONTROLLING).

The Game:

- Each 5-minute game will include 6 robots - 3 on each team.
- Robots must be able to play offense and defense.
- On any given possession, 2 of the 3 robots on an alliance must touch the ball.
- Robots must move continually in order to avoid a penalty (no parking in front of the goal, no intentional pinning other robots)
- Robots must not cross the center line until the ball does (no cherrypicking)
- Each goal is worth 1 point - counted toward each individual robot's overall score; curve will be based on the individual robot with the highest total points from all three introductory classes.

The Notebooks:

- 1) Two (2) days a week will be dedicated to notebook maintenance and updates (for a total of **6 entries**).
- 2) Team members will add notes, calculations, observations, photographs, etc. to document the design process.

The Points:

- 1) 100 points for the robot design and build
- 2) 100 points for the notebook
- 3) 100 points for the competition (based on a curve of the highest score in all of the intro classes)

